IEEE P802.11
Wireless LANs

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| Proposed Resolutions to select comments on D4.0  |
| Date: 2019-08-05 |
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Abstract

This document contains the potential resolutions to following comments on D4.0[1] on P802.11REVaxD4.0[2]: 20015, 20854, 20109, 20110, 20111, 20274, 20426, 20430, 20610, 20658, 20812, 20815, 20909, 20920, 20981, 21466, and 20957.

rev0: initial version

rev1: added resolution for 20110

rev2 : fix MS issues

rev3: added resolution for 20610

rev4: updates from meeting on 8/1

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

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| **CID** | **Section** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 20015 | 9.4.1.17 | 124 | 32 | What are "these control response frames"? | Explicitly identify the fames (ACK and BA) | **Revised**Agree with the comment.**TGax editor, change, “these control response frames” to “Ack and BlockAck frames” at the referenced location** |
| 20854 | 9.4.1.17 | 124 | 27 | A non-HE STA does not support the More Data signalling in BlockAck frames | Change "Non-AP STAs set the More Data Ack subfield to 1 to indicate that they can process Ack and BlockAckframes with the More Data bit in the Frame Control field equal to 1 and remain in the awake state." to "Non-AP non-HE STAs set the More Data Ack subfield to 1 to indicate that they can process Ackframes with the More Data bit in the Frame Control field equal to 1 and remain in the awake state. Non-AP HE STAs set the More Data Ack subfield to 1 to indicate that they can process Ack, BlockAck and Multi-STA BlockAckframes with the More Data bit in the Frame Control field equal to 1 and remain in the awake state." | **Accepted**Agree with the comment.**TGax editor, incorporate the proposed change.** |
| 20109 | 9.4.2.243 | 187 | 54 | The value 0 of the TXOP Duration RTS Threshold field has a special meaning (see 26.2.1), as such it has to be explicitly added here as an exception as well. Specify that the value 0 indicates "no update or smth like that. Also clarify in what MGMT frames this value 0 is allowed. | As in comment. | **Revised**Agree with the comment.**TGax editor, please make changes as shown in 11-19/0619r4 with the tag CID 20109** |
| 20110 | 9.4.2.243 | 189 | 36 | Make sure that these two definitions (Seg 0 and Seg 1) are consistent with each other and their use is consistent with the normative behavior table (Table 26-14). | As in Comment | **Revised** Agree with the comment**Comment 21351 points out the differences. The resolution to comment 21351 provides the required clarification and the changes shown in 11-19/0304r2 under all headings that include CID 21351.****No further instructions to the editor** |
| 20274 | 3.2 | 34 | 2 | Change "using transmitting mask" to "using the 20MHz transmit spectral mask" | As in comment | **Revised**Commenter used the word “transmitting” instead of the word in draft, “transmit”. However, Agree with the comment in principle.**TGax editor, Insert “20 MHz” before “transmit spectral mask” at the referenced location** |
| 20426 | 3.2 |  |  | The baseline definition of ?\"bufferable unit" says A-MSDUs are only bufferable on HT and DMG STAs. 11ax needs to clarify the buffering of A-MSDUs for HE STAs, including at least TWT support for A-MSDUs. | Add HE STAs to list of STA types that can buffer A-MSDUs. | **Rejected****An HE STA is also an HT STA and the definition thus covers an HE STA** |
| 20430 | 3.2 | 39 | 56 | As an "allocation unit" of what? | Change "allocation unit" to "allocation of subcarriers for uplink transmissions" | **Revised**Agree with the comment in principle. But RU is applicable to both downlink and uplink and so removing the word, “uplink”.**TGax editor, change “allocation unit” to “allocation of subcarriers for transmission” at the referenced location”** |
| 20610 | 8.3.15.9 | 66 | 50 | "The effect of the receipt of this primitive by the MAC is unspecified." -- then it serves no purpose. It's also not referred to anywhere | Delete Subclause 8.3.5.19. Delete the righmost X in Table 8-2 | **Accepted**Agree with the commentor. Furthermore, 802.11md is deleting a similar subclause (8.3.15.16) |
| 20658 | 10.3.5 | 237 | 52 | "A non-AP STA that transmits the MPDUs in an HE TB PPDU is exempt from requirements related todot11RTSThreshold and dot11TXOPDurationRTSThreshold because the STA is not the TXOP holder." -- "the MPDUs" has no antecedent. Also what if there was a RDG? | Change the cited text at the referenced location to "A non-AP STA that transmits an HE TB PPDU outside the context of a RDG is exempt from requirements related todot11RTSThreshold and dot11TXOPDurationRTSThreshold because the STA is not the TXOP holder." | **Revised**Agree with the comment.**TGax editor, make the proposed change with “an RDG” replaced with “a RDG”**  |
| 20812 | 11.22.7.5 | 283 | 63 | "NOTE---In a planned ESS a non-AP STA could use the Recommended BSS Transition RSSI Threshold Within The ESSsubfield to modify when it starts scanning for a new BSS. However, how the non-AP STA adjusts its BSS transitionalgorithms is implementation specific and beyond the scope of this standard." seems misplaced | Move the NOTE to above the last para and change "In a planned ESS a non-AP STA could" to "A non-AP STA could then" | **Accepted**Agree with the comment.**TGax editor, make the proposed changes** |
| 20815 | 9.4.2.63 | 149 | 32 | "If trans-mitted by an HE STA in a (Re)Association Request frame, the Switch Timeout field is not present in theChannel Switch Timing element." breaks the baseline, which assumes the presence of this field. There's no justification for this change anyway | Delete the cited text at the referenced location | **Revised**The Channel Switch Timing element was not part of the (Re)Association Request frame in the baseline and as such the cited text does not break compliance of the legacy devices. Within the baseline, the Channel Switch Timing element was to be only present in TDLS Channel Switch Request and Response Action Frames.However there is a change that is needed. The “by an HE STA” in “… transmitted by an HE STA in (Re)Association Request …” is not necessary as this is already established through dot11HESubchannelSelectiveTransmissionImplemented.**Tgax editor, remove “by an HE STA” in the cited text** |
| 20909 | 9.4.2.243 | 199 | 1 | "The ER SU Disable subfield indicates whether 242-tone HE ER SU PPDU reception is disabled or enabledby the AP." -- but enabled/disabled where? Only at the AP? Can HE TDLS peer STAs use ER even if this subfield is set to 0? | Clarify | **Revised**Agree with the comment that there are several points of clarifications are needed.**TGax editor, please make changes as shown in 11-19/0619r4 with the tag CID 20909** |
| 20920 | 3.2 | 33 | 32 | The PPDU definitions are inconsistent | Change the definitions to the following: "high efficiency (HE) physical layer protocol data unit (PPDU): A Clause 27 PPDU that is not a Clause 21 PPDU.downlink (DL) high efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU): An HE MU PPDU transmitted by an AP. This PPDU carries one or more PHY service data units (PSDUs) for one or more users.uplink (UL) high efficiency (HE) multi-user (MU) physical layer (PHY) protocol data unit (PPDU): An HE MU PPDU transmitted by a non-AP STA. This PPDU carries a single physical layer service data unit (PSDU).high efficiency (HE) extended range (ER) single-user (SU) physical layer (PHY) protocol data unit (PPDU): A PPDU transmitted with HE ER SU PPDU format. This PPDU carries a single service data unit (PSDU).high efficiency (HE) multi-user (MU) physical layer protocol data unit (PPDU): A PPDU transmitted with HE MU PPDU format.high efficiency (HE) single-user (SU) physical layer protocol data unit (PPDU): A PPDU transmitted with HE SU PPDU format. This PPDU carries a single physical layer service data unit (PSDU).high efficiency (HE) trigger-based (TB) physical layer protocol data unit (PPDU): A PPDU transmitted with HE TB PPDU format. This PPDU carries a single physical layer service data unit (PSDU)." | **Accepted**Agree with the comment.**TGax editor, make the proposed changes** |
| 20981 | 9.2.4.7.1 | 87 | 43 | NOTE 8 is not referred to in the table | Add "See NOTE 8" at the end of the MPDU size+HE PPDU cell | **Accepted**Agree with the comment.**TGax editor, make the proposed changes** |
| 21466 | 9.2.4.7.1 | 86 |  | Table 9-25 has a very good summary, but A-MSDU is not defined for Non-HT non-VHT non-DMG PPDU and non-HT duplicate PPDU (Is this pre-HT?). So, what case are we handling? | Put "N/A" in 2nd column of A-MSDU | **Rejected****This comment is not on the P802.11REVax changes and hence beyond the scope of the letter ballot****However, the entries are correct and cover the cases when a non-HT. non-VHT, non-DMG PPDU, and non-HT duplicate PPDU using A-MSDU can be sent by one HT STA to another HT STA** |
| 20957 |  |  |  | Need to be clear as to whether transmissions in an HE TB PPDU count towards the used\_time when admission control is in effect (and if so, for which AC(s), if it's an A-MPDU with multiple TIDs) | As it says in the comment | **Rejected.****10.24.4.2.3 specifies that HE TB PPDUs do not affect used\_time. See also CID 20671** |

* Definitions specific to IEEE 802.11

***Tgax Editor: Change the definition of “bufferable unit (BU)” as follows (need to import the text from PIEEE802.11md Draft 2.0):***

bufferable unit (BU): A medium access control (MAC) service data unit (MSDU), aggregate MAC service data unit (A-MSDU) [high-throughput (HT) stations (STAs), ~~and~~ [20426] directional multi-gigabit (DMG) STAs and high efficiency (HE) STAs only], or bufferable MAC management protocol data unit (MMPDU).

* OM Control

***Tgax Editor: Change the 7th paragraph as shown:***

The ER SU Disable subfield indicates whether, for a non-AP STA, 242-tone HE ER SU PPDU reception is disabled or enabled.

The ER SU Disable subfield is set to 1 to indicate that it is disabled and set to 0 to indicate that it is enabled. [20909] If the OM Control field is transmitted by an AP, then the ER SU Disable subfield is reserved.

* HE Operation element

***Tgax Editor: Change the 7th paragraph of the subclause as follows:***

The TXOP Duration RTS Threshold subfield enables an HE AP to manage RTS/CTS usage by non-AP HE STAs that are associated with it (see 26.2.1 (TXOP duration-based RTS/CTS)). The TXOP Duration RTS Threshold subfield contains the TXOP duration RTS threshold in units of 32 s, which enables the use of RTS/CTS except for the values 0 and 1023. The value 1023 indicates that TXOP duration-based RTS is disabled. The value of 0 is allowed in Beacon and Probe Response frames and indicates that the previously announced TXOP duration RTS threshold remains in effect. In all other frames, the value of 0 is reserved.[20109] (#15017)

***Tgax Editor: Change the 10th paragraph of the subclause as follows:***

The ER SU Disable subfield indicates whether 242-tone HE ER SU PPDU reception by the AP is disabled or enabled[20909]. The ER SU Disable subfield is set to 1 to indicate that it is disabled and set to 0 to indicate that it [20909] is enabled.

* TXOP duration-based RTS/CTS

***Tgax Editor: Change the second paragraph of the subclause as shown:***

An HE AP may set the TXOP Duration RTS Threshold subfield of HE Operation element it transmits to a value between 1 and 1022 [20109]to enable TXOP duration-based RTS/CTS exchanges of its associated STAs. The AP may set the TXOP Duration RTS Threshold field to 1023 to disable TXOP duration-based RTS/CTS exchanges of its associated STAs The AP may in Beacon and Probe Response frames set the TXOP Duration RTS Threshold field to 0 to make no changes to TXOP duration-based RTS/CTS exchanges of its associated STAs..

* PPDU format selection

***Tgax Editor: Change the 3rd, 4th and 5th paragraphs of the subclause as shown***

ASTA shall not transmit a 242-tone HE ER SU PPDU to a peer non-AP STA if the most recently received OM Control field from that peer non-AP STA, if any, has the ER SU Disable subfield equal to 1. [20909](#16080)

A STA shall not transmit a 242-tone HE ER SU PPDU to an AP if the most recently received HE Operation element from that AP has the ER SU Disable subfield equal to 1. [20909]

A STA shall not transmit a 106-tone HE ER SU PPDU to a peer STA if the most recently received HE Capabilities element from that peer STA has the Partial Bandwidth Extended Range field equal to 0. [20909]

ASN.1 encoding of the MAC and PHY MIB

***Tgax Editor: Change the description of the MIB variable dot11TXOPDurationRTSThreshold in attribute Dot11HEStationConfigEntry as shown below***[20109]***:***

dot11TXOPDurationRTSThreshold OBJECT-TYPE

 SYNTAX Unsigned32 (1..1023)

 UNITS "32 microseconds"

 MAX-ACCESS read-write

 STATUS current

 DESCRIPTION

 "This is a control variable.

 It is written by an external management entity or by the MAC of a non-AP HE STA upon receiving an HE Operation element from the HE AP with which it is associated.

 Changes take effect as soon as practical in the implementation.

 This attribute indicates the duration of the transmission or TXOP above which an RTS/CTS handshake is performed. Value 1023 means this feature is disabled."

 DEFVAL { 1023 }

 ::= { dot11HEStationConfigEntry 10}

**References:**

1. IEEE 802.11 document 11-[19-0292 – Comments on Tgax D4.0](https://mentor.ieee.org/802.11/dcn/19/11-19-0292-08-00ax-comments-on-tgax-d4-0.xlsx)
2. [P820.11REVaxD4.0](http://www.ieee802.org/11/private/Draft_Standards/11ax/Draft%20P802.11ax_D4.0.pdf)
3. [P802.11REVmdD2.0](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0.pdf)